

WHAT IS CLAIMED IS:

1. An assembly type crankshaft, comprising:
a crank pin of a crankshaft; and
at least one crank web of the crankshaft, the crank pin and the at least one crank web being fabricated as separate members, to be assembled together by pressing said crank pin into a pin hole provided in said crank web,
wherein said crank pin is formed as a hollow member, and after said crank pin is pressed into a pin hole provided in said crank web with an ordinary press-in allowance, a plug member having predetermined length, shorter than a thickness of said crank web, is pressed into an end portion of a hollow hole in said crank pin, and said crank web is bent and deformed in an up-and-down direction thereof.
2. The assembly type crankshaft according to claim 1, wherein said predetermined length of said plug member to be pressed into the end portion of the hollow hole in said crank pin is equal to or smaller than substantially one half of the thickness of said crank web.
3. The assembly type crankshaft according to claim 1, wherein said plug member to be pressed into the end portion of the hollow hole in said crank pin is shaped like a non-circular shape, whereby the crank pin has a cross-sectional shape with a direction of a major axis and a direction of a minor axis; and said press-in is performed in a manner such that the direction of the major axis of said cross-sectional shape coincides with the up-and-down direction of said crank web.
4. The assembly type crankshaft according to claim 3, wherein a length of the cross-sectional shape in the direction of the minor axis is 0.5 to 1 mm.
5. The assembly type crankshaft according to claim 1, wherein the ordinary

press-in allowance is 50 to 100 μm .

6. The assembly type crankshaft according to claim 1, wherein the plug member includes a collar portion for preventing oil leakage which may occur from a clearance between the plug member and the hollow hole.

7. The assembly type crankshaft according to claim 1, wherein the crank pin has an elliptical cross-sectional shape.

8. The assembly type crankshaft according to claim 1, wherein the crank pin has a polygonal cross-sectional shape.

9. The assembly type crankshaft according to claim 1, wherein said predetermined length of said plug member to be pressed into the end portion of the hollow hole in said crank pin is equal to or smaller than substantially one third of the thickness of said crank web.

10. The assembly type crankshaft according to claim 1, wherein said crank web is deformed in a V shape when the plug member is pressed into the end portion of the hollow hole in said crank pin.

11. The assembly type crankshaft according to claim 1, wherein the hollow hole of the crank pin has a wall with a predetermined wall thickness, the wall including a passage portion through which lubricating oil passes into the hollow hole.

12. An assembly type crankshaft,
a crank pin of a crankshaft; and
at least one crank web of the crankshaft, the crank pin and the at least one crank

web being fabricated as separate members, to be assembled together by pressing said crank pin into a pin hole provided in said crank web,

wherein after said crank pin is pressed into a pin hole provided in said crank web with an ordinary press-in allowance, a plug member having predetermined length, shorter than a thickness of said crank web, is pressed into apertures provided in both ends of said crank pin, and said crank web is bent and deformed in an up-and-down direction thereof.

13. The assembly type crankshaft according to claim 12, wherein said predetermined length of said plug member to be pressed into the apertures in the ends of said crank pin is equal to or smaller than substantially one half of the thickness of said crank web.

14. The assembly type crankshaft according to claim 14, wherein said plug member to be pressed into the apertures in the ends of said crank pin is shaped like a non-circular shape, whereby the crank pin has a cross-sectional shape with a direction of a major axis and a direction of a minor axis; and said press-in is performed in a manner such that the direction of the major axis of said cross-sectional shape coincides with the up-and-down direction of said crank web.

15. The assembly type crankshaft according to claim 14, wherein a length of the cross-sectional shape in the direction of the minor axis is 0.5 to 1 mm.

16. The assembly type crankshaft according to claim 12, wherein the ordinary press-in allowance is 50 to 100 μm .

17. The assembly type crankshaft according to claim 12, wherein the crank pin has an elliptical cross-sectional shape.

18. The assembly type crankshaft according to claim 12, wherein the crank pin has a polygonal cross-sectional shape.

19. The assembly type crankshaft according to claim 12, wherein said predetermined length of said plug member to be pressed into the apertures in the ends of the hollow hole in said crank pin is equal to or smaller than substantially one third of the thickness of said crank web.

20. The assembly type crankshaft according to claim 12, wherein said crank web is deformed in a V shape when the plug member is pressed into the apertures in the ends of said crank pin.